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Notice of Allowability

Application No.

10/672,409

Examiner

LOHA BEN

Applicant(s)

KOGA ET AL.

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants' amendment dated January 25, 2005.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☒ The drawings filed on 9/29/03(except Fig. 1) and 1/25/05 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



**Loha Ben
Primary Examiner**

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the Claims

In claims 3 and 4: line 4, after ",", the phrase "each movable part having held electrodes formed thereon, -- has been inserted to reflect the scope of lines 11 and 12, and 19 and 20, of both claims (since two movable parts are involved); and to provide antecedent basis for "the held electrodes of the second movable part" recited on lines 13 and 14 of claim 3; and line 6, before "held", -- the -- has been inserted.

Fully amended texts are given below:

Claim 3 (Currently Amended): A method of driving a zoom lens unit comprising:
a step of executing a cycle at least once while at least one of a first movable part and a second movable part moves one pitch of a driving electrode of a plurality of groups of driving electrodes, each movable part having held electrodes formed thereon,
wherein the cycle comprises:

a first step for simultaneously grounding the held electrodes of the first movable part and holding electrodes of a holding electrode unit corresponding to the held electrodes as well as attracting the first movable part to a driving electrode substrate by

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energizing at least one group of the driving electrodes of the plurality of groups of driving electrodes;

a second step executed just after the first step to energize the holding electrodes and the held electrodes such that the first and second movable parts are attracted to a pair of holding electrodes of the holding electrode unit;

a third step executed just after the second step to simultaneously ground the held electrodes of the second movable part and the holding electrodes of the holding electrode unit corresponding to the held electrodes as well as to attract the second movable part to the driving electrode substrate by energizing at least one group of the driving electrodes of the plurality of groups of driving electrodes; and

a fourth step executed just after the third step to energize ones of the holding electrodes and the held electrodes such that the first and second movable parts are attracted to the pair of holding electrodes of the holding electrode unit,

wherein a stationary part, which causes the first and second movable parts each holding a lens to execute a zoom operation by guiding the first and second movable parts so as to reciprocate in a predetermined direction as well as by driving them in a different direction, comprises:

the driving electrode substrate having the plurality of groups of driving electrodes formed thereon in a predetermined direction at a constant pitch to drive the first and second movable parts; and

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the holding electrode unit having the pair of holding electrodes corresponding to the held electrodes of the first and second movable parts to selectively attract and hold the first and second movable parts.

Claim 4 (Currently Amended): A method of driving a zoom lens unit comprising:
a step of executing a cycle at least once while at least one of a first movable part and a second movable part moves one pitch of a driving electrode of a plurality of groups of driving electrodes, each movable part having held electrodes formed thereon,
wherein the cycle comprises:

a first step for simultaneously grounding the held electrodes of the first movable part and holding electrodes of a holding electrode unit corresponding to the held electrodes as well as attracting the first movable part to a driving electrode substrate by energizing at least one group of the driving electrodes of the plurality of groups of driving electrodes;

a second step executed just after the first step to energize the holding electrodes and the held electrodes such that the first and second movable parts are attracted to a pair of holding electrodes of the holding electrode unit;

a third step executed just after the second step to simultaneously ground the held electrodes of the first movable part and the holding electrodes of the holding electrode unit corresponding to the held electrodes as well as to attract the first movable part to the driving electrode substrate by energizing at least one group of the driving electrodes of the plurality of groups of driving electrodes; and

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a fourth step executed just after the third step to energize ones of the holding electrodes and the held electrodes such that the first and second movable parts are attracted to the pair of holding electrodes of the holding electrode unit,

wherein a stationary part, which causes the first and second movable parts each holding a lens to execute a zoom operation by guiding the first and second movable parts so as to reciprocate in a predetermined direction as well as by driving them in a different direction, comprises:

the driving electrode substrate having the plurality of groups of driving electrodes formed thereon in a predetermined direction at a constant pitch to drive the first and second movable parts; and

the holding electrode unit having the pair of holding electrodes corresponding to the held electrodes of the first and second movable parts to selectively attract and hold the first and second movable parts.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: None of the references cited teaches or fairly suggests the four sequential operations of a cycle controlled by a drive control circuit in a zoom lens unit to generate movement of the first and second movable parts relative to a stationary part of the zoom lens unit under cooperative interaction between electrodes formed on the movable parts, on driving electrode substrate, and on holding electrode unit, in which the drive control circuit sequentially energizes groups of electrodes of the driving electrode substrate and

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selectively energizes the electrodes of the holding electrode unit, and in which the drive control circuit carries out a cycle at least once while at least one of the first and second movable parts moves one pitch of an electrode of the groups of electrodes when the first and second movable parts are moved in a different direction.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Loha Ben whose telephone number is (571) 272-2323. The examiner can normally be reached on Monday to Saturday, generally between 12:00 noon and 8:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps, can be reached on Monday to Friday, at (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 13, 2005



Loha Ben
Primary Examiner